Family Structure, Children, and Wealth in Retirement

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Abstract: This paper examines how parenthood affects wealth accumulation ahead of retirement and how these effects inform models of fertility, optimal pension design, and wealth inequality. Using data from the Health and Retirement Study, I analyze multiple measures of wealth—including total, financial, and housing assets—and document large differences across family structures, education, and marital status for men and women, finding that observationally similar parents have substantially lower levels of wealth than non-parent counterparts. To address selection into parenthood, I instrument for parenthood through polygenic scores for fertility, which predicts childbearing but is plausibly exogenous to wealth outcomes. The estimates show that the lower levels of wealth for parents are understated, and the causal effect of having children substantially reduces accumulated wealth before retirement. Among college-educated, married men, for example, the median total-wealth difference between non-parents and parents is about $524,000, and remains $362,000 after extensive controls, and the difference grows by over 30 percent accounting for selection into parenthood. These effects are most pronounced in the middle and upper parts of the wealth distribution, suggesting that parenthood suppresses savings and asset accumulation well beyond foregone labor income. By linking individual fertility choices to long-run wealth outcomes, the results provide empirical grounding for models of family behavior in pay-as-you-go systems. With parenthood declining from 91 to below 80 percent among recent U.S. cohorts with completed fertility and the share married declining as well, the results translate into growing disparities in household wealth tied to family structure and consequences for the sustainability of pay-as-you-go pension systems.

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1. Introduction

Family and household structure play a central role in shaping both financial and non-financial well-being in later life. On the non-financial side, through marriage and family, there is potential for greater support with age, less loneliness, more advocates and because of this better physical and mental health outcomes. On the financial side, however, the relationships are more complex. As a group, people in married households are clearly better off financially. However, adding the dimension of children complicates the picture, and differences become even more pronounced when comparing men and women.

In this study, I characterize wealth across family structures and estimate the effects of parenthood on wealth accumulation just ahead of retirement age, using data from the *Health and Retirement Study* (HRS). I document substantial differences in multiple measures of wealth across education, marital status, and race, separately for men and women. To account for selection into parenthood, I employ polygenic scores (PGS) as an instrument for fertility, along with controls for marital status and other background characteristics. This approach estimates the causal effect of having children on pre-retirement wealth, providing new evidence on an less explored source of heterogeneity in wealth inequality.

These results have implications for a number of areas of economic research and public policy, yet the topic remains arguably understudied relative to its importance for both pension policy and our understanding of wealth inequality.

Household Structure and Wealth Inequality. The effect of children on wealth is often overlooked because family structure itself is a dominant source of heterogeneity in economic well-being. With declining fertility and a growing share of childless adults, understanding how parenthood shapes wealth accumulation sheds light on an emerging contributor to future wealth inequality. Love (2010) show that households with children differ systematically in asset composition, holding a larger share of wealth in housing and lower-risk assets, which affects both expected returns and volatility. Differences in family costs—monetary, time, and exposure to risk through divorce or dissolution—also shape lifetime saving and portfolio choices.

The present study is most similar to Maroto (2018) and Kapelle and Vidal (2022), who examine the effects of children on wealth prior to retirement using the NLSY and SHARE data, respectively. Maroto (2018) use sequence analysis to characterize family and fertility trajectories, while Kapelle and Vidal (2022) focus on European households. Gibson-Davis (2025), using the SCF, compare non-elderly households with and without children but do not control for education. In contrast, my analysis incorporates both education and marital status, offering a clearer view of how parenthood interacts with these dimensions. Interestingly, my findings differ from Maroto (2018), who report that the effects of children on wealth are concentrated at the top of the distribution.

Recent work by Parolin et al. (2025) shows that income inequality has continued to rise even as earnings inequality has stabilized, largely due to shifts in household structure and assortative mating. A similar pattern is evident in wealth: family composition has become an increasingly important determinant of economic inequality.

Pension Policy, Fertility, and Evaluation. This topic also connects directly to debates on Social Security design and reform. Public pension systems such as the U.S. Social Security program inherently interact with family decisions by affecting incentives around fertility, marriage, and divorce. Under pay-as-you-go (PAYGO) systems, benefits to retirees are financed by the contributions of the current working population. Children thus function as a kind of "public good": in the future, their labor supports all retirees, but the costs of raising them are borne privately by parents. This externality implies that PAYGO systems may distort fertility decisions, providing implicit subsidies to childless households and disincentivizing childbearing. Classic models of fertility and PAYGO systems—such as Barro and Becker (1989), Sinn (2004), Wang (2021), and Boldrin et al. (2015)—predict that the expansion of public pension systems depresses fertility by lowering the private returns to having children.

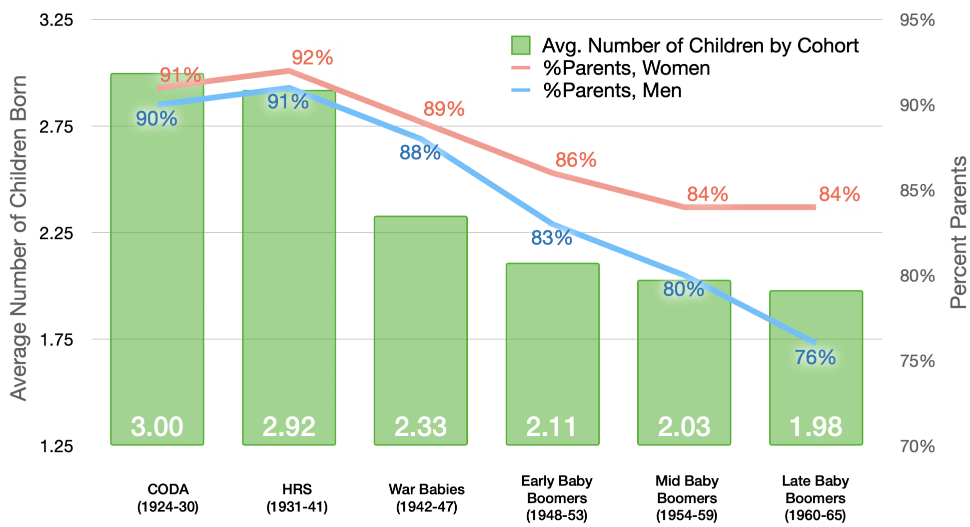
As Boldrin et al. (2015) note, as much as half of the decline in fertility in developed countries over the past half-century may be attributable to this mechanism, particularly among lower-income households for whom public pensions represent a larger share of retirement income. Similarly, Ehrlich and Kim (2007) emphasize the inherent externality in PAYGO systems: defined benefits are largely independent of one's own or one's children's contributions, reducing the incentive to account for childrearing costs in lifetime planning.

Within this framework, my study empirically captures the private costs of childrearing that are implicit in these models—costs that manifest directly in accumulated wealth before retirement. A clearer understanding of these costs can inform both the calibration of structural models of fertility and savings, and the evaluation of pension reforms that alter the relative burden borne by families with and without children. For example, Abió et al. (2004) show that linking pension benefits to the number of children can act as a corrective policy, restoring both optimal capital accumulation and population growth by internalizing fertility-related externalities.

Planning and Adequacy. One area of relevance is retirement planning and adequacy. Prior research is sparse, aside from Scholz and Seshadri (2009) and Biggs (2022) who show how childrearing affects consumption and savings patterns in ways that carry through to retirement adequacy and present challenges. Skinner (2007) proposes the "peanut-butter" theory of saving, suggesting that parents may be more accustomed to budgeting and therefore better equipped to adjust to income reductions in retirement. This work is complementary by focusing on the cumulative outcome of these behaviors—the wealth position that households reach just before retirement.

While much prior research has focused on how children affect female labor supply, relatively few studies have examined how those differences translate into wealth accumulation for all family types later in life. Wealth just ahead of retirement is a reflection of both direct expenses and foregone earnings from non-market labor, capturing one view of the cumulative opportunity costs of childrearing. These differences propagate through multiple channels: lower Social Security benefits, reduced private savings, and limited asset accumulation. Although tax policies modestly offset the cost of raising children, they are insufficient to equalize wealth outcomes across family types. By quantifying these differences and accounting for selection into parenthood using genetic instruments, this study provides new evidence on how fertility, family structure, and wealth intersect—an intersection central to understanding both private household behavior and the sustainability of public pension systems.

FIGURE 1: Trends in Percent Parents and Average Number of Children by HRS Cohort



Notes: Includes 16,019 women and 12,858 men (weighted) with European ancestry PGS in the HRS when first observed at age 50+.

2. HRS Data and Descriptive Statistics

The Health and Retirement Study is a bienniel panel survey of Americans ages 50 and over and spouses that began in 1992 and continues today. It contains rich, high-quality information on demographics, health, lifestyle, work, and assets for over 50 thousand people.

The broad HRS sample studied here includes 23,020 male and female respondents born between 1931 and 1965. Some descriptive analysis here will include this larger category, while later analysis accounting for selection into parenthood will include only those who also have linked polygenic scores (PGS), described below and in Appendix A.1. This is a representative subsample of 13,680. Because polygenic scores are standardized to ancestry, some analyses will focus on the largest group, which includes 9,082 with European ancestry.

Cohorts studied here show a number of changes in patterns in marital status and fertility across birth years. Figure 1 shows changes across a subsample of HRS-defined cohorts with European ancestry PGS, starting with the CODA cohort that precedes the main sample studied here. Respondents in the CODA and HRS cohorts have on average 3.0 and 2.92 children, and between 90 and 92 percent of men and women. These figures decline up to the Late Baby Boomer cohort, born 1960–65, where the average number of children is just under 2, and there's a divergence between the share with at least one child ever born: 84 percent of women in this cohort compared to 76 percent of men.

While the focus of the analysis in this paper is on differences in wealth for otherwise similar people with different parental status, we will see that this changing composition must contribute to various measures of household wealth inequality.

Table 1 shows for the same sample of HRS respondents with European PGS the average number of children born and whether ever parent by marital status when observed at ages 50–54. Those

Table 1: Number of Children Ever Born and Percent Parents, by Marital Status and Gender

	Avg. Children	**(s.e.)**	**Percent Parents**
Married/Partnered			
Men	2.74	(0.02)	91.0% (0.32)
Women	2.69	(0.02)	91.3% (0.31)
Separated/Divorced			
Men	2.52	(0.05)	88.6% (0.87)
Women	2.79	(0.04)	91.5% (0.64)
Widowed			
Men	2.66	(0.15)	85.8% (2.44)
Women	3.28	(0.06)	93.2% (1.06)
Never Married			
Men	0.62	(0.08)	26.3% (1.33)
Women	1.36	(0.07)	53.9% (1.15)

Notes: Includes 23,020 men and women in the HRS when first observed at ages 50–54.

Table 2: Health at Ages 50–54 by Marital Status, Gender, and Parenthood

	Share Reporting Good+ Health	
	Parent mean (s.e.)	**Non-parent mean (s.e.)**
Married/Partnered		
Men	0.79 (0.006)	0.79 (0.016)
Women	0.79 (0.005)	0.84 (0.013)
Separated/Divorced		
Men	0.69 (0.018)	0.70 (0.042)
Women	0.66 (0.012)	0.79 (0.031)
Widowed		
Men	0.63 (0.060)	0.55 (0.150)
Women	0.66 (0.022)	0.81 (0.061)
Never Married		
Men	0.69 (0.041)	0.72 (0.026)
Women	0.55 (0.029)	0.80 (0.027)

Notes: Includes 16,966 men and women in the HRS when first observed at ages 50–54.

who have been ever been married or are currently partnered have somewhat similar numbers of children, whether they are married or partnered, separated, divorced, or widowed; they are also similarly likely to have had at least one child. Those who report never having been married have far fewer children on average, however a substantial share are parents; women especially at over half having at least one child. This is higher for younger cohort and lower for older cohorts (not shown).

Because lifetime income and wealth are influenced by—and by some measures also influence—health, we will also want to consider and account for this in studying wealth across family categories. Indeed, health also varies by these categories, and across parental status. Table 2 shows the share of respondents reporting that their health is "Good", "Very Good", or "Excellent" when ages 50–54. Among parents, those who report being married or partnered when first observed in the survey report being in better health. Separated, divorced, or widowed parents are less likely to report good health, and never-married women with children have the lowest share reporting that they are in good health. Never-married men with children are far less likely to have contributed substantially to childrearing compared to never-married women with children, and the share who report good health is similar to never-married men with no children in the column to the right.[1] Among non-parents, the share reporting good health is generally higher, and in every category higher for women.

Education also plays an important role in understanding marital, fertility, and health outcomes, which I will describe in relation to wealth next along with other factors.

2.1. Wealth Approaching Retirement

Here we will see measures of wealth across categories, both unconditional by groups and also adjusted for other factors. These figures show wealth at ages 50–64, just ahead of typical retirement years, for our subsample of HRS respondents. All suggest that parental status is a strong determinant of accumulated wealth.

There are numerous definitions of wealth both conceptually and in the HRS data.[2] Here I will present and assess the broad measures of household (1) *Total Assets*, which includes net housing equity and other non-financial, illiquid wealth and financial wealth including defined contribution retirement accounts and (2) *Non-Housing Assets*, which excludes only net housing wealth from the total measure.[3]

What is notable about housing as a measure of wealth compared to other assets is that it can be both a consumption good and a chief instrument for savings. Its consumption value may also be related to family and household composition as it is a shared good and its value could be transformed across different household sizes in many possible ways. Additionally, the composition of housing and all other wealth is different across the wealth distribution: Equity in housing is a significant component of wealth especially around the middle of the total wealth distribution but not at the higher and lower parts of the total wealth distribution. Both total and non-housing measures of wealth, then, have different interpretations and together provide a more complete picture of assets that are presented here.

Table 3 shows these non-housing assets and assets including housing for our main sample by gender and marital and parental statuses over ages 60–64, unadjusted for health or education. For each group, the mean and median dollar amounts are given. In this case and typically—but not always—the mean is much greater than the median given the skewness of wealth distributions and

[1] This highlights an important aspect and in some ways a shortfall in the measure of children born. The ideal measure would be one of investment of childrearing; whether one has children born is a very good proxy for many, but less so for those not married or partnered. For these categories there are large differences in investment by gender. Likewise, though less common, one may be a guardian or primary caretaker without having a biological child born.

[2] For precise, specific categories of wealth that are assured to span the entire wealth distribution, the Survey of Consumer Finances would be preferred. However, because the focus is on broad wealth-accumulation at older ages and relies on the polygenic scores linked to the HRS, the HRS is very appropriate. In any case, the HRS and SCF do line up very well on most of the broad measures presented here.

[3] RAND-produced HRS variables `hWatota` and `hWatotn` (RAND HRS Data, 2020). All figures are CPI inflation-adjusted to 2015 dollars. Neither of these broad definitions of wealth will include defined benefit pension wealth or the value of projected future Social Security income, though these measures could be applied as in Jacobs et al. (2022).

TABLE 3: Assets Over Ages 60–64 by Marital Status, Gender, and Parenthood

	Non-Housing Assets ($)				**Total Assets, with Housing ($)**			
	Non-Parent		*Parent*		*Non-Parent*		*Parent*	
	Men	Women	Men	Women	Men	Women	Men	Women
Married/Partnered								
Mean	625,060	735,166	540,215	545,848	811,887	946,023	744,079	762,239
50th percentile	202,174	311,205	162,618	167,962	398,113	511,901	338,538	351,059
Separated/Divorced								
Mean	358,850	221,684	257,146	118,835	490,217	365,175	353,534	203,488
50th percentile	22,391	70,652	34,207	17,732	56,082	224,752	89,620	73,267
Widowed								
Mean	168,625	319,483	219,593	262,906	203,785	458,406	315,008	381,791
50th percentile	52,577	56,784	14,176	32,609	106,604	203,524	51,359	116,484
Never Married								
Mean	286,595	232,895	138,960	55,594	389,575	399,424	229,445	112,982
50th percentile	45,619	85,500	75,652	12,474	150,316	188,660	85,177	17,526

Notes: Includes 9,533 respondents in the HRS when observed over ages 60–64. Adjusted for 2015 dollars.

long right tails. For a number of reasons, transformation are commonly employed, and will be here below. For these direct dollar amounts, there are a number of interesting patterns. Those who are married or partnered at ages 60-64 have much higher mean and median wealth for both asset categories. Non-parents have distinctly more on average than parents, and with in category women have more than men, especially among non-parents. Looking at those separated or divorced, mean wealth is higher for men within every category, and non-parents have substantially higher average wealth by gender. Median wealth is more mixed across gender, but again parents have less than non-parents by gender. The same is strongly true for median wealth among those in the widowed or never married categories.

2.2. Adjusted Wealth Distributions

There are other factors, notably education levels, predictive of wealth that may differ across these groups and we will now turn to these before formally accounting for selection into parenthood. To begin, as one illustration, Figure 2 shows the full distribution of total assets among similarly-aged married men who have at least a college degree for our European ancestry PGS subsample. This shows inverse hyperbolic sine (ihs) transformed total assets, which include net negative assets.[4] For this otherwise relatively similar group, there is a large difference in total asset distributions of parents and non-parents. The distribution among non-parents is to the right, with a median of transformed wealth at 13.17, equivalent to $524K; among parents the median is 12.80, or $362K.

Controlling for many factors, differences remain between wealth among parents and non-parents within the same education attainment and marital status. Figure 3 shows non-housing asset quantiles for women (left) and men (right) by marital status from predicted margins at the median

[4]The inverse hyperbolic sine (ihs) transformation, $\text{asinh}(x) = \ln(x + \sqrt{x^2 + 1})$, approximates $\ln(2x)$ for large x but remains defined at zero and for negative values, making it suitable for skewed but commonly negative variables such as wealth.

Figure 2: Distributions Total Assets Among Married College Men

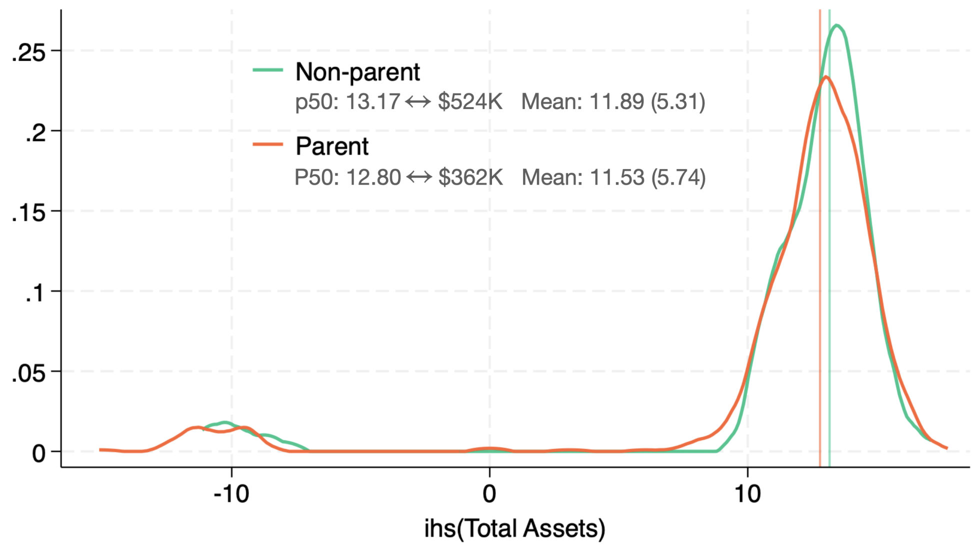
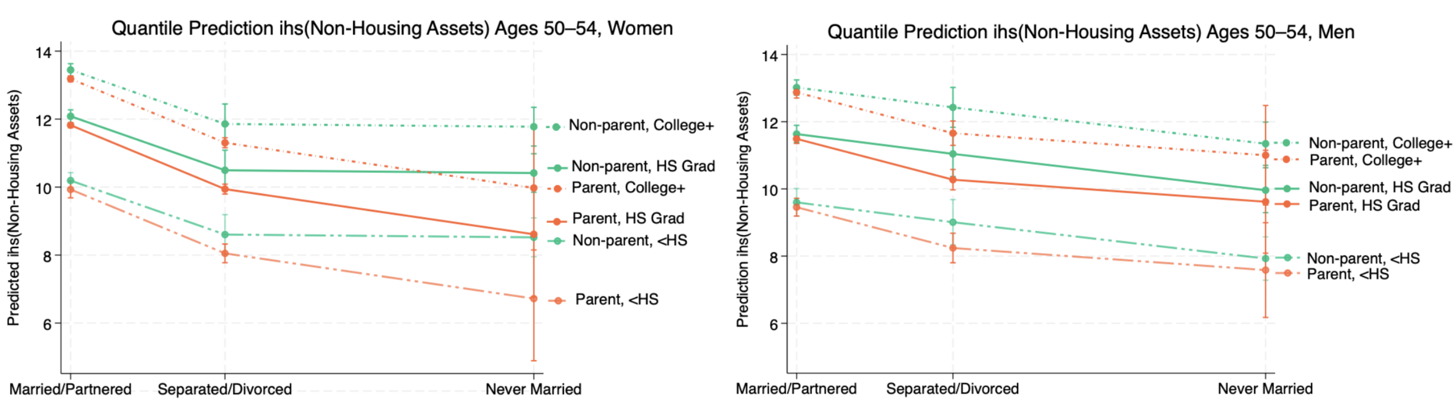


Figure 3: Non-Housing Asset Quantiles by Marital Status and Education, Ages 50-54



of a quantile regression controlling for birth year, region, race, and health.[5] Those with higher educational attainment have higher median wealth, and those married have the highest amount. For all groups, the median among non-parents is higher, especially for those separated or divorced and, for women, median among never-married non-parents is much higher than for parents. Figure B.1 in Appendix B similarly shows adjusted mean non-housing assets across years of education.

The absolute wealth differences between parents and non-parents generally increase at older ages and are present at the 25th and 75th percentiles as well, as shown in Figures 4 and 5. These depict the predictive margins of a quantile regression for non-housing assets (Figure 4) and total assets including housing (Figure 5) that control for interactions among birth year, marital status, education, race, and region. The graphs on the left are in dollar amounts, while those on the right are ihs-transformed.

When controlling for many factors influencing wealth near retirement, looked at from a number of angles, non-parents have substantially higher levels of wealth compared to observationally similar parents. However it could be that while observationally similar, the groups differ in selection into

Figure 4: Non-Housing Asset Quantiles by Age

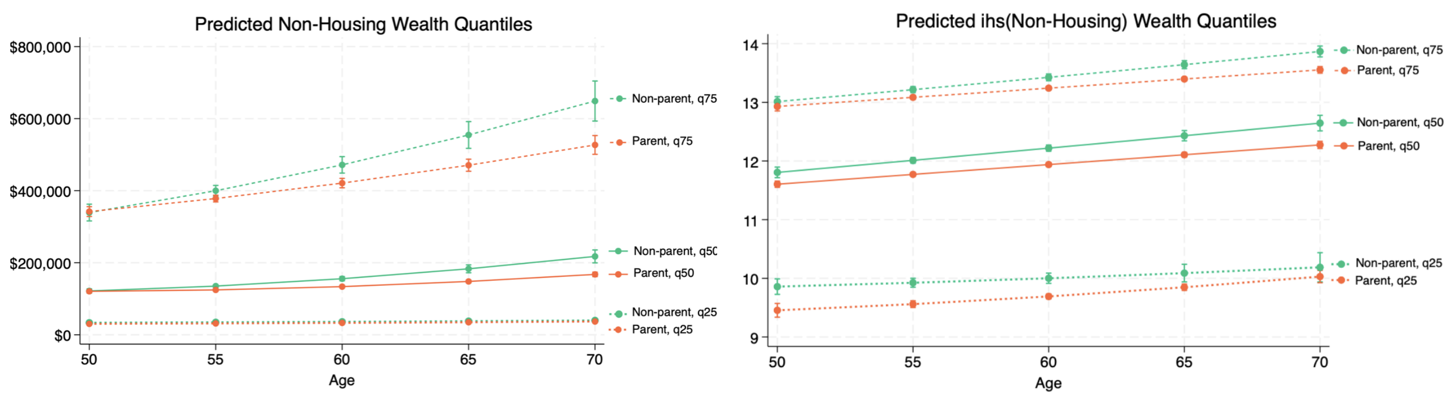
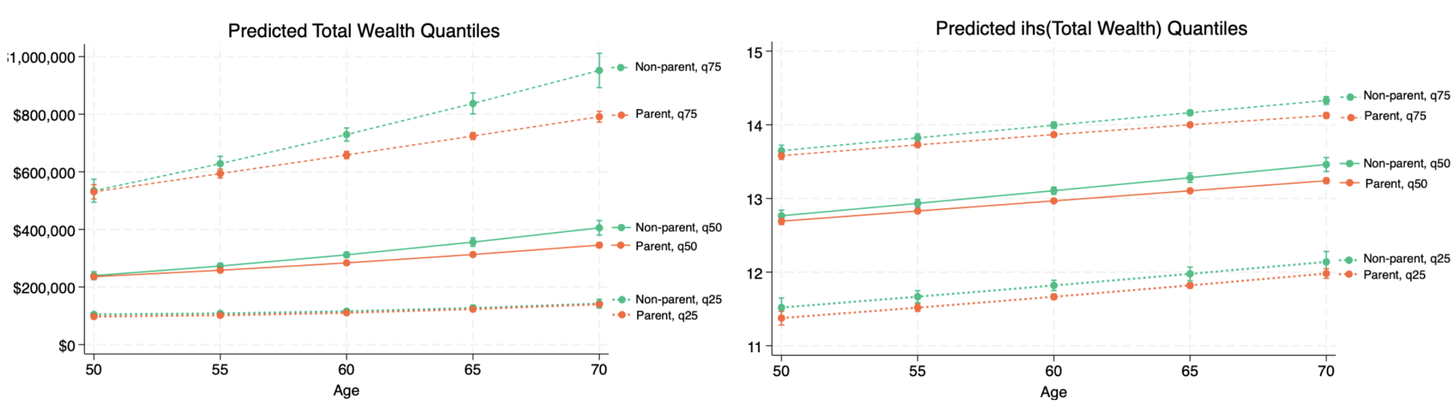


Figure 5: Total Asset Quantiles by Age



[5] Series for those widowed or having some college are included in the quantile regression but excluded from the figure due to high variation making other, more precisely estimated marginal effects less clear.

parenthood on factors that would also translate into different levels of savings, such that non-parents would have higher wealth if they were parents as well. The next section shows the effect of adjustments for this potential selection effect, where the results suggest that selection works in the opposite direction.

3. Accounting for Parental-Status Selection

To account for unobserved selection into parenthood that may also influence wealth accumulation, I employ polygenic fertility scores as an instrument. This HRS variable is described in Appendix A.1, along with how and whether these scores correspond with education, marital status, and birth-year cohort.

IV Setup Using the Fertility PGS Letting Y_i denote (IHS-transformed) wealth, D_i an indicator for ever having had a birth by the analysis window, Z_i the fertility polygenic score (PGS), and X_i the vector of controls used in estimation, I estimate the causal effect of parenthood on wealth via two-stage least squares (2SLS), using the fertility PGS as an instrument for D_i. Standard errors are clustered at the household-person level.

All specifications are estimated on the same subsample described in Section 2 The first-stage diagnostic regression is run on the same gender and cohort window (without the ancestry and wage-category filters, matching the Stata call).

First stage (linear probability).

$$D_i \;=\; \pi_0 \;+\; \pi_1 Z_i \;+\; X_i'\pi \;+\; v_i, \qquad i \in \mathcal{S}_{\text{FS}}, \tag{1}$$

where $D_i = \not{\Bbbk}\{\texttt{raevbrn\_bin} = 1\}$ and $Z_i = \texttt{E5\_NEBM\_SOCGEN16}$. The control vector is

$$X_i \;=\; \big(\texttt{rabyear},\, \texttt{rarelig FE},\, \texttt{rabplace FE},\, \texttt{raeduc FE},\, \texttt{racohbyr FE},\, \texttt{rWmstat\_COMBINE FE}\big).$$

This corresponds to the Stata specification:

```
reg raevbrn_bin c.E5_NEBM_SOCGEN16 c.rabyear i.rarelig i.rabplace i.raeduc
   i.racohbyr i.rWmstat_COMBINE, vce(cluster hhidpn).
```

The first-stage F-statistic (Kleibergen–Paap rk Wald), partial R^2, and AIC/BIC are reported here.

Reduced form (instrument → outcome).

$$Y_i \;=\; \kappa_0 \;+\; \kappa_1 Z_i \;+\; X_i'\kappa \;+\; W_i'\eta \;+\; \varepsilon_i, \tag{2}$$

where $Y_i = \texttt{ihs\_hWatota2015dol}$, $Z_i = \texttt{E5\_NEBM\_SOCGEN16}$, and $W_i = \big(\texttt{rWagey\_m\_},\ \texttt{rWagey\_m\_}^2\big)$. The reduced form quantifies the total association between the instrument and wealth; under the IV model, $\kappa_1 \approx \beta\,\pi_1$ so the sign and broad magnitude of the reduced form align with the product of the first-stage and 2SLS effects.

Second stage (2SLS).

$$Y_i = \alpha + \beta D_i + X_i'\gamma + W_i'\delta + u_i, \qquad i \in \mathcal{S}, \tag{3}$$

instrumenting D_i with Z_i from (1). The outcome is Y_i = `ihs_hWatota2015dol`, and the flexible age controls are included as

$$W_i = \big(\texttt{rWagey\_m\_},\ \texttt{rWagey\_m\_}^2\big),$$

implemented in Stata via `c.rWagey_m_##c.rWagey_m_`. The corresponding command is:

```
ivregress 2sls ihs_hWatota2015dol X W (raevbrn_bin = c.E5_NEBM_SOCGEN16), vce(cluster hhidpn).
```

Reported are: (i) the Kleibergen–Paap rk Wald F statistic and partial R^2 from the first stage, and (ii) Durbin–Wu–Hausman tests of endogeneity (`estat endog`). Under relevance, exclusion, and monotonicity, $\hat{\beta}$ identifies the Local Average Treatment Effect (LATE) of parenthood on IHS-transformed wealth for compliers whose parenthood status is shifted by the fertility PGS.

Exclusion restriction (PGS). I use the HRS polygenic score for number of children ever born (`E5_NEBM_SOCGEN16`), constructed using GWAS weights from Barban et al. (2016), standardized within ancestry. The score predicts fertility strongly—each standard deviation increases the probability of ever having a birth by roughly six percentage points—while being plausibly unrelated to later-life financial shocks, satisfying the relevance and exclusion restrictions for instrumental-variables estimation.

Conditional on ancestry/time/batch and the rich covariate set (X_i, W_i), the fertility PGS Z_i affects wealth Y_i *only through* its effect on becoming a parent D_i (and its timing), i.e. $Z_i \perp u_i \mid X_i, W_i$, and Z_i has no direct pathway to Y_i within ancestry. This assumption is assessed through balance tests, pre-birth placebo outcomes, and plausibly exogenous bounds that allow small direct effects of Z_i on Y_i Barban et al. (2016).

3.0.1. Results: Mean Effects of Parenthood on Wealth

Table 4 reports the two-stage least squares (2SLS) estimates of the effect of parenthood on total household wealth for men ages 50–69.

First stage. The fertility polygenic score (`E5_NEBM_SOCGEN16`) is a strong and statistically significant predictor of becoming a parent. A one–standard-deviation increase in the score raises the probability of ever having a birth by approximately 5.9 percentage points ($\hat{\pi}_1 = 0.0586$, s.e. $= 0.0048$, $t = 12.1$, $p < 0.001$). The Kleibergen–Paap rk Wald statistic of 144.7 far exceeds conventional weak-instrument thresholds, and the partial R^2 of 0.048 indicates that the instrument explains about five percent of the residual variation in parenthood.

Second stage. Instrumenting parenthood with the fertility PGS yields a negative and statistically significant effect on total wealth: $\hat{\beta} = -1.75$ (s.e. $= 0.76$, $p = 0.02$). This implies that, for men whose parenthood decision is shifted by genetic fertility propensity, becoming a parent reduces IHS-transformed wealth by roughly 1.75 units, corresponding to an economically meaningful decline in accumulated assets by late middle age. The Durbin–Wu–Hausman test ($F = 4.78$, $p = 0.029$)

Table 4: Summary of 2SLS Estimates: Effect of Parenthood on Total Wealth (Men, Ages 50–69)

	Coefficient	(Std. Err.)	p-value
Parenthood (D_i = ever had a birth)	−1.753	(0.756)	0.020
Birth year	−0.059	(0.018)	0.001
Education: college and above	2.673	(0.222)	0.000
Separated/divorced	−2.250	(0.241)	0.000
Never married	−3.503	(0.738)	0.000
Age	0.240	(0.137)	0.080
Wage^2 ($rWagey\_m\_\#rWagey\_m\_$)	−0.002	(0.001)	0.129
(Additional Controls)			
Constant	117.202	(36.042)	0.001
Model statistics			
Observations		26,738	
R^2		0.0758	
Kleibergen–Paap rk Wald F		144.726	
Partial R^2 (first stage)		0.048	
Durbin–Wu–Hausman F (p-value)	4.78	($p = 0.029$)	

Notes: Two-stage least squares (2SLS) estimates of the effect of parenthood on IHS-transformed total wealth. The endogenous regressor (`raevbrn_bin`) is instrumented with the fertility polygenic score `E5_NEBM_SOCGEN16`. Standard errors are in gray parentheses and clustered at the household/person level. All regressions include full controls for religion, birthplace, education, cohort, marital status, and a quadratic in wages. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

rejects exogeneity of parenthood, supporting the need for an instrumental-variables approach.

Overall, the fertility PGS provides a powerful and credible source of exogenous variation in parenthood. The IV estimates indicate that, for genetically induced compliers, fatherhood substantially lowers accumulated wealth by ages 50–69, consistent with reduced savings or increased consumption demands associated with childrearing.

3.1. Distributional Heterogeneity: Control-Function Quantile Models

Next we'll look at how the effect of parenthood varies across the wealth distribution using a control-function approach at quantiles $\tau \in \{0.25, 0.50, 0.75\}$.

First stage and residual. Let $D_i = \mathbb{1}_1\{\texttt{raevbrn\_bin} = 1\}$ denote parenthood and Z_i = `E5_NEBM_SOCGEN16` the fertility PGS. For men in cohorts `racohbyr` $\in \{4, 5, 6\}$ and ancestry `raracem` = 1, we estimate the linear first stage

$$D_i = \pi_0 + \pi_1 Z_i + X_i'\pi + v_i, \qquad X_i = \big(\texttt{rabyear}, \texttt{rarelig FE}, \texttt{rabplace FE}, \texttt{raeduc FE}, \texttt{racohbyr FE}, \texttt{rWmstat\_COM} \tag{4}$$

and obtain the fitted residual $\hat{v}_i = D_i - \hat{D}_i$.

Quantile outcome equation (control-function). Let Y_i = `ihs_hWatota2015dol` be IHS wealth. Define G_i as marital-status fixed effects (`rWmstat_COMBINE FE`) and include interactions of D_i with G_i to allow the parenthood effect to differ by marital status. We also include religion fixed effects and a flexible wage control $W_i = (\texttt{rWagey\_m\_}, \texttt{rWagey\_m\_}^2)$ and linear birth year `rabyear`. For each quantile τ we estimate

$$Q_\tau(Y_i \mid D_i, \hat{v}_i, X_i, W_i, G_i) \;=\; \beta(\tau)\, D_i \;+\; \theta(\tau)'\big(D_i \times G_i\big) \;+\; \rho(\tau)\, \hat{v}_i \;+\; \gamma(\tau)' X_i \;+\; \eta(\tau)' W_i, \quad (5)$$

using simultaneous quantile regression.

The coefficient $\rho(\tau)$ on $\hat{v}_i$ captures the selection correction at quantile τ (its significance indicates endogeneity at that quantile). The coefficient $\beta(\tau)$ is the baseline causal effect of parenthood at quantile τ, while $\theta(\tau)$ traces heterogeneity by marital status through $D_i \times G_i$ interactions. All effects are conditional quantile effects (not quantiles of treatment effects).

Estimation commands (Stata).

```
reg raevbrn_bin c.E5_NEBM_SOCGEN16 c.rabyear i.rarelig i.rabplace i.raeduc i.racohbyr i.rWmstat_COMBI
predict vhatMen, resid
sqreg ihs_hWatota2015dol vhatMen i.raevbrn_bin#i.rWmstat_COMBINE i.rarelig c.rWagey_m_##c.rWagey_m_ i.
  quantile(.25 .50 .75)
```

Table 5: Quantile Effects of Parenthood on Wealth (Control-Function Specification)

	q25	q50	q75
Residual ($\hat{v}_i$ = vhatMen)	0.745	0.612	0.443
	(0.328)	(0.239)	(0.315)
Parenthood × Married/partnered	−0.650	−0.637	−0.525
	(0.321)	(0.235)	(0.284)
Parenthood × Separated/divorced	−3.064	−1.662	−1.170
	(0.318)	(0.230)	(0.307)
Parenthood × Widowed	−2.764	−1.758	−1.386
	(0.454)	(0.252)	(0.307)
Parenthood × Never married	−3.666	−2.290	−1.629
	(1.036)	(0.542)	(0.634)
Birth year	−0.058	−0.031	−0.021
	(0.005)	(0.004)	(0.003)
Constant	116.649	66.659	47.865
	(10.217)	(7.295)	(6.329)
Pseudo-R^2	0.068	0.066	0.065
Observations		14,047	
Bootstrap reps.		20	

Notes: Control-function quantile regression estimates at the 25th, 50th, and 75th percentiles of the IHS-transformed wealth distribution. Coefficients reflect heterogeneous effects of parenthood by marital status. Standard errors in gray parentheses are bootstrap clustered at the household/person level.

That the residual coefficient is significant and positive suggests that those who are more likely to become parents (for unobserved reasons) tend to have higher wealth regardless, biasing OLS downward. The control-function residual is positive and significant at the 25th and 50th percentiles, indicating that unobserved factors associated with higher propensity for parenthood are linked to higher conditional wealth—consistent with selection. The negative and monotonically smaller effects of parenthood at higher quantiles suggest that the wealth penalty of having children is largest in the lower and middle parts of the wealth distribution, while attenuating among wealthier men.

4. Discussion and Conclusion

Parenthood and family structure are central to understanding the accumulation of household wealth, particularly as individuals approach retirement. Even after accounting for differences in education, marital status, race, and selection into parenthood, the results show that parent hold significantly lower wealth than comparable non-parents. These findings suggest that the cumulative costs of childrearing extend well beyond immediate consumption tradeoffs, shaping long-run savings behavior, asset composition, and ultimately retirement preparedness.

Implications for retirement preparedness The evidence indicates that parents enter retirement with fewer accumulated assets across both housing and non-housing wealth components. Among college-educated married men, for example, the median gap in total wealth between non-parents and parents exceeds $160,000 after adjusting for education, marital status, and cohort. These differences persist even within similar earnings categories, suggesting that the financial costs of children are not fully offset by higher saving rates or inter-household transfers. Such patterns reinforce findings in Scholz and Seshadri (2009) and Biggs (2022), which emphasize that family size affects retirement adequacy through both lower lifetime earnings and altered consumption smoothing.

Wealth inequality and demographic change. These unadjusted differences are economically large andmay translate into measures of wealth inequality in the United States. As fertility rates have declined, the share of individuals who never have children has risen from roughly 9 percent among early cohorts to about 20 percent among more recent ones. Because parenthood is associated with lower wealth even after extensive controls, these demographic shifts imply a structural source of growing wealth disparities across households. A decreased share in parenthood may further amplify these gaps through differential saving capacity and intergenerational transfers. The magnitude of within-education differences observed here is comparable to other well-documented dimensions of inequality such as race or cohort. This underscores the role of family formation as a key, yet often overlooked, driver of contemporary wealth inequality (Parolin et al., 2025).

Pension policy and fertility externalities. The results also contribute to models of optimal pension design and fertility by providing empirical evidence of the private costs associated with childrearing in pay-as-you-go (PAYGO) systems. In such systems, benefits to retirees are financed by the contributions of younger workers, yet the costs of raising those future contributors are borne privately by parents. This asymmetry—long noted in theoretical models of fertility and social security (Barro and Becker, 1989; Sinn, 2004; Boldrin et al., 2015)—creates an implicit subsidy to childlessness and may contribute to the observed decline in fertility. The present findings quantify this private cost in wealth terms, linking individual savings outcomes to broader demographic and fiscal dynamics. Policy reforms such as caregiver credits, child-related benefit adjustments, or partial linking of benefits to fertility, as explored in Abió et al. (2004), could mitigate these distortions and help sustain PAYGO systems in aging societies.

While the analysis controls for selection into parenthood using polygenic scores predictive of fertility, the estimates capture a local average treatment effect among individuals whose parenthood is shifted by genetic propensity. Future work could extend this approach to study timing of births, intensity of caregiving, or wealth trajectories beyond the pre-retirement window examined here. Additional work linking these wealth differences to consumption and subjective wellbeing would further clarify the long-run welfare implications.

Family structure, fertility, and wealth important dimensions of retirement. Parenthood entails substantial direct financial and opportunity costs that persist through to later life, contributing to large differences in wealth accumulation and affecting the distributional consequences of demographic change. With parenthood declining among recent U.S. cohorts with completed fertility, and marriage rates falling as well, these results imply growing disparities in household wealth tied to family structure and important consequences for the potential reforms and design of pay-as-you-go pension systems.

A. Appendix

A.1. Polygenic Scores in the HRS

The instrumental variable for parenthood is the polygenic score for number of children ever born (NEB) in the Health and Retirement Study (HRS).[6] This score aggregates genome-wide variation associated with lifetime fertility using weights from large meta-analyses of reproductive behavior. Specifically, it summarizes single-nucleotide polymorphisms (SNPs) linked to the number of biological children reported by individuals of European ancestry in genome-wide association studies (GWAS), yielding an additive, standardized index predictive of genetic propensity for childbearing (Barban et al., 2016; Beauchamp, 2016).

In the HRS, the NEB PGS (`E5_NEBM_SOCGEN16`) is standardized to mean zero and unit variance within ancestry group, and is available for respondents in the HRS genetic subsample for three ancestry groupings: African American, European, and Hispanic. The largest subsample is for those within teh European ancestry group, which for the cohorts studied here includes 9,082 of the 13,680 having an associated PGS. The score is relevant because it strongly predicts realized fertility—a one-standard-deviation increase raises the probability of ever having a birth by about six percentage points in the sample—but it is excludable under the assumption that genetic variants influencing fertility timing and parity affect later-life wealth only through the number of children born. The score provides a quasi-random source of variation in parenthood that precedes wealth accumulation decisions and is uncorrelated with idiosyncratic financial shocks, satisfying the relevance and exclusion conditions for instrumental-variables estimation.

[6] HRS Polygenic Scores, version 1.1 (2019 release). Documentation available at https://hrsdata.isr.umich.edu/data-products/polygenic-score-data-pgs.

B. Additional Figures and Detailed Tables

Figure A.1: Predicted Parental Status by Education and PGS, Women

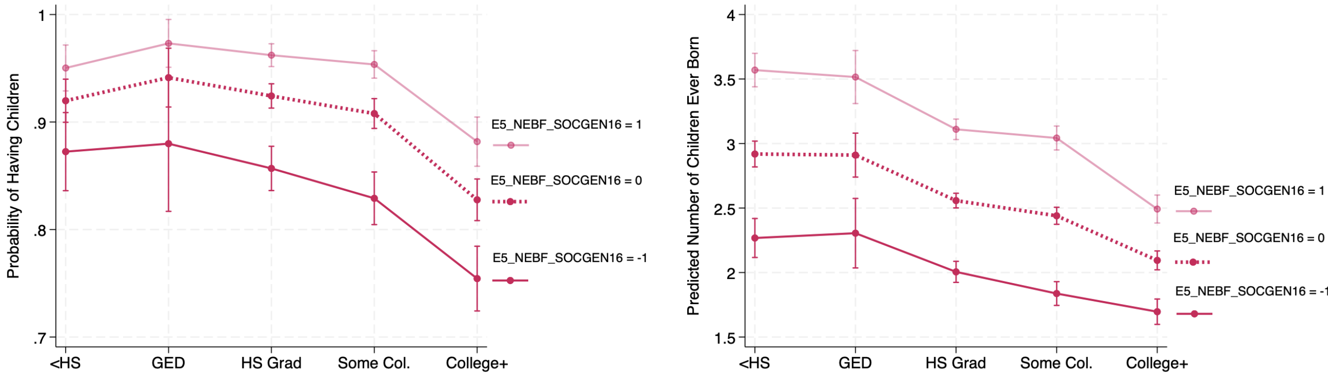


Figure A.2: Predicted Parental Status by Education and PGS, Men

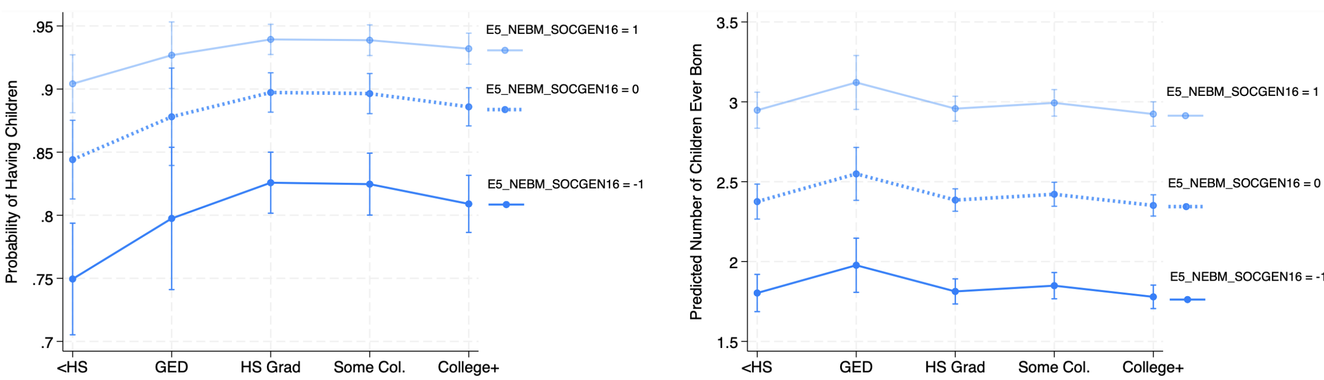


Figure B.1: Mean Non-Housing Assets by Years of Education and Marital Status

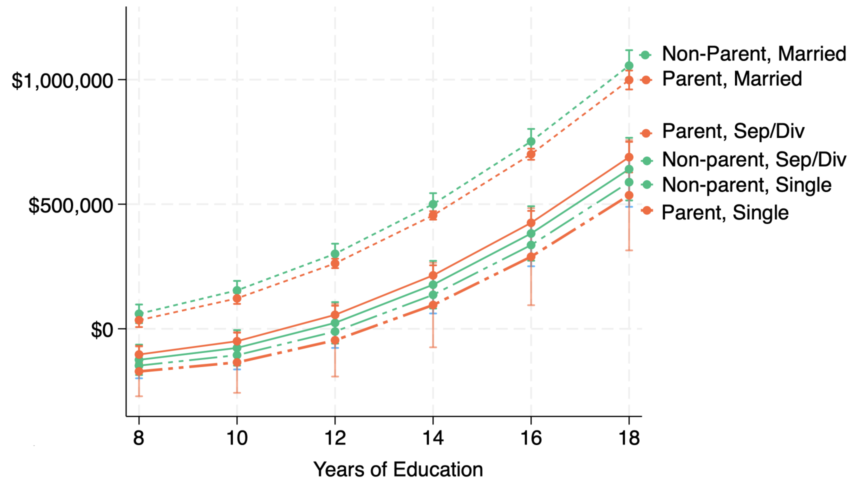


Figure B.2: Control-function quantile estimates at $\tau \in \{0.25, 0.50, 0.75\}$. Each subplot displays coefficients with $\pm 1.96\times$SE error bars. Legends are placed below each panel for clarity.

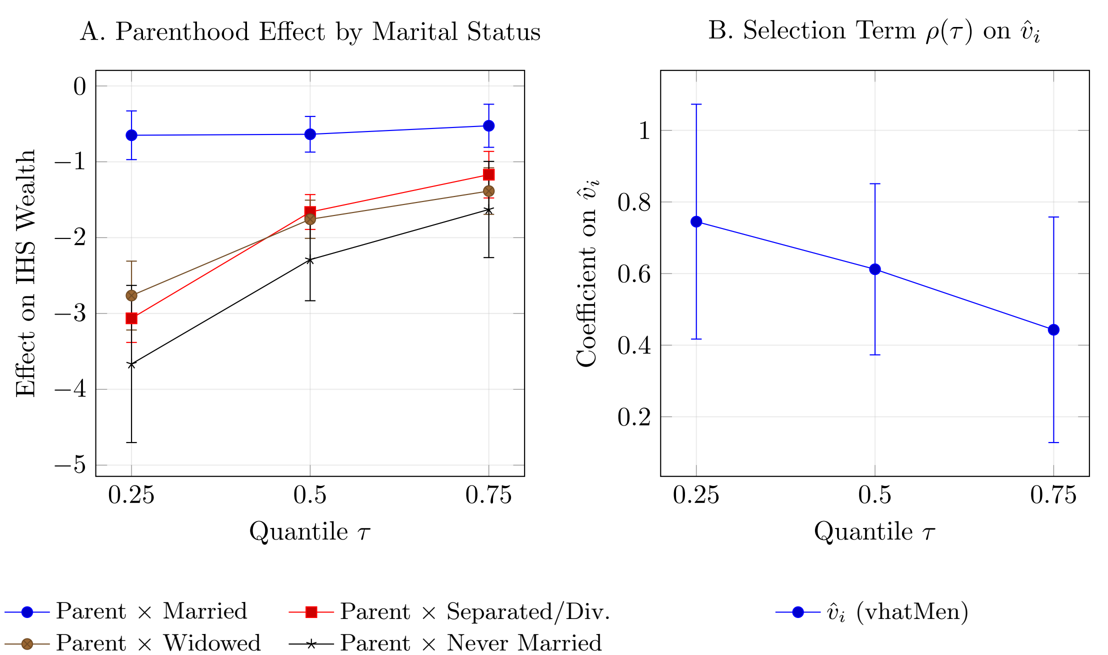


Table B.1: 2SLS Estimates: Effect of Parenthood on Mean Total Wealth (Men, Ages 50–69)

	Coefficient	(Std. Err.)	p-value
Endogenous regressor			
Parenthood (D_i = ever had a birth)	−1.753	(0.756)	0.020
Other covariates			
Birth year	−0.059	(0.018)	0.001
Catholic	0.429	(0.130)	0.001
Jewish	0.512	(0.387)	0.186
None / no preference	−0.153	(0.207)	0.461
Other religion	0.085	(0.714)	0.905
Mid Atlantic	−0.264	(0.235)	0.260
East North Central	0.115	(0.215)	0.591
West North Central	0.109	(0.244)	0.655
South Atlantic	−0.104	(0.245)	0.672
East South Central	0.249	(0.247)	0.313
West South Central	−0.406	(0.277)	0.142
Mountain	−0.393	(0.409)	0.336
Pacific	0.142	(0.301)	0.639
U.S./N.A. division	−0.001	(1.114)	0.999
Not U.S./territory	−0.104	(0.336)	0.756
GED	0.485	(0.313)	0.122
High school graduate	1.610	(0.219)	0.000
Some college	1.706	(0.229)	0.000
College and above	2.673	(0.222)	0.000
HRS cohort	0.830	(0.419)	0.047
War babies	0.648	(0.325)	0.046
Early baby boomers	0.242	(0.266)	0.362
Separated/divorced	−2.250	(0.241)	0.000
Widowed	−2.314	(0.558)	0.000
Never married	−3.503	(0.738)	0.000
Age	0.240	(0.137)	0.080
Age^2	−0.002	(0.001)	0.129
Constant	117.202	(36.042)	0.001
Model statistics			
Observations		26,738	
R^2		0.0758	
Kleibergen–Paap rk Wald F		144.726	
Partial R^2 (first stage)		0.048	
Durbin–Wu–Hausman F (p-value)	4.78	($p = 0.029$)	
Cluster level		Household/person (3,953 clusters)	

Notes: Instrumental-variables estimates of the effect of parenthood on IHS-transformed total wealth. The endogenous regressor is `raevbrn_bin` (ever had a birth), instrumented with the fertility polygenic score `E5_NEBM_SOCGEN16`. All specifications include the covariates shown, plus fixed effects for religion, birthplace, education, cohort, and marital status, and a quadratic in wage income. Standard errors (in gray parentheses) are robust to clustering at the household/person level.

TABLE B.2: Control-Function Quantile Regression: Effect of Parenthood on Total Wealth (Men, Ages 50–69)

	q25	q50	q75	(Std. Err.)
Selection term				
Residual ($\hat{v}_i$ = vhatMen)	0.745	0.612	0.443	(0.328, 0.239, 0.315)
Parenthood × Marital status				
Married, parent (≥1 child)	−0.650	−0.637	−0.525	(0.321, 0.235, 0.284)
Separated/divorced, parent	−3.064	−1.662	−1.170	(0.318, 0.230, 0.307)
Widowed, parent	−2.764	−1.758	−1.386	(0.454, 0.252, 0.307)
Never married, parent	−3.666	−2.290	−1.629	(1.036, 0.542, 0.634)
Selected covariates				
Catholic	0.484	0.316	0.232	(0.036, 0.034, 0.031)
Jewish	0.989	0.872	0.937	(0.125, 0.092, 0.084)
None/no preference	0.153	0.212	0.213	(0.081, 0.047, 0.036)
Other religion	0.195	0.207	0.070	(0.174, 0.088, 0.109)
Age	0.182	0.199	0.205	(0.095, 0.067, 0.077)
Age^2	−0.001	−0.001	−0.001	(0.001, 0.001, 0.001)
GED	0.977	0.546	0.308	(0.210, 0.052, 0.086)
High-school graduate	1.855	1.158	0.984	(0.166, 0.074, 0.080)
Some college	2.015	1.479	1.207	(0.182, 0.084, 0.076)
College and above	2.889	2.128	1.858	(0.169, 0.071, 0.078)
Birth year	−0.058	−0.031	−0.021	(0.005, 0.004, 0.003)
Constant	116.649	66.659	47.865	(10.217, 7.295, 6.329)
Model fit (pseudo-R^2)	0.0679	0.0662	0.0653	
Observations		14,047		
Bootstrap replications		20		

Notes: Simultaneous quantile regression estimates at the 25th, 50th, and 75th percentiles of the IHS-transformed wealth distribution. Each column reports conditional quantile effects of parenthood interacted with marital status, estimated using a control-function approach that includes the first-stage residual ($\hat{v}_i$). Standard errors in gray are bootstrap clustered at the household/person level.

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